Claims.

1. A method for electrically isolating a cardiac chamber, comprising the steps of:

introducing a resonant circuit having a resonant frequency into an operative position in a pulmonary vein proximate an ostium of said pulmonary vein; and

generating an electromagnetic field at a site remote from said resonant circuit, said resonant circuit being operatively included in said electromagnetic field, wherein said electromagnetic field has a frequency substantially equal to said resonant frequency of said resonant circuit, said electromagnetic field causing said resonant circuit to re-radiate electromagnetic energy so as to ablate intramural target tissue in said pulmonary vein.

2. The method according to claim 1, wherein said step of generating said electromagnetic field is performed until a conduction block at said target tissue is confirmed.

3. The method according to claim 1, wherein said resonant circuit is included in a stent, and wherein said step of introducing said resonant circuit comprises circumferentially engaging said stent with an inner wall of said pulmonary vein to define a circumferential region of contact between said stent and said pulmonary vein, wherein a principal axis of said stent is substantially aligned coaxially with said pulmonary vein.

4. The method according to claim 3, further comprising the step of automatically calibrating said stent to resonate at a frequency of said electromagnetic field.

5. The method according to claim 3, wherein said step of circumferentially engaging said stent is performed by radially expanding said stent.

6. The method according to claim 5, wherein said stent is constructed of an alloy having a shape memory.

7. The method according to claim 6, further comprising varying a temperature of said stent to alter a configuration thereof.

8. The method according to claim 7, wherein while performing said step of varying said temperature, said stent radially expands responsive to said shape memory.

9. The method according to claim 3, wherein said stent is constructed of a biodegradable material.

10. The method according to claim 3, further comprising the steps of:

after performing said steps of generating an electromagnetic field leaving said stent at said operative position; and

thereafter repeating said steps of generating an electromagnetic field.

11. A system for electrically isolating a cardiac chamber, comprising:

a resonant circuit having a resonant frequency adapted for introduction into an operative position in a pulmonary vein proximate an ostium of said pulmonary vein, said resonant circuit re-radiating radiofrequency energy responsively to an externally generated electromagnetic field that has a frequency substantially equal to said resonant frequency of said resonant circuit, said electromagnetic field causing said resonant circuit to re-radiate said radiofrequency energy so as to ablate intramural target tissue in said pulmonary vein.

12. The system according to claim 11, further comprising a sensor for monitoring electrophysiologic cardiac properties of a subject for determining if a predefined end point has been reached.

13. The system according to claim 12, wherein said predefined end point comprises confirmation of a conduction block at said target tissue.

14. The system according to claim 11, further comprising a stent dimensioned for circumferentially engagement with an inner wall of said pulmonary vein to define a circumferential region of contact between said stent and said pulmonary vein, wherein a principal axis of said stent is substantially aligned coaxially with said pulmonary vein, wherein said resonant circuit is incorporated in said stent.

15. The system according to claim 14, further comprising:

a plurality of capacitors in said resonant circuit; and

a control circuit for automatically selecting one of said capacitors responsively to a frequency of said electromagnetic

field so as to conform said resonant frequency of said resonant circuit with said frequency of said electromagnetic field.

16. The system according to claim 14, wherein said stent is constructed of an alloy having a shape memory.

17. The system according to claim 14, wherein said stent is constructed of a biodegradable material.

18. A system for electrically isolating a cardiac chamber, comprising:

a resonant circuit having a resonant frequency adapted for introduction into an operative position in a pulmonary vein of a subject proximate an ostium of said pulmonary vein;

a catheter adapted to carry said resonant circuit into said operative position in said pulmonary vein;

a stent dimensioned for circumferential engagement with an inner wall of said pulmonary vein to define a circumferential region of contact between said stent and said pulmonary vein, wherein a principal axis of said stent is substantially aligned coaxially with said pulmonary vein, said resonant circuit being incorporated in said stent; and

a generator disposed external to said subject for generating an electromagnetic field that has a frequency substantially equal to said resonant frequency of said resonant circuit, said electromagnetic field operatively including said resonant circuit and causing said resonant circuit to re-radiate electromagnetic energy so as to ablate intramural target tissue in said pulmonary vein.

19. The system according to claim 18, further comprising a sensor for monitoring electrophysiologic cardiac properties of said subject for determining if a predefined end point has been reached.

20. The system according to claim 19, wherein said predefined end point comprises confirmation of a conduction block at said target tissue.

21. The system according to claim 18, further comprising:

a plurality of capacitors in said resonant circuit; and

a control circuit for automatically selecting one of said capacitors responsively to a frequency of said electromagnetic field to so as to conform said resonant frequency of said resonant circuit with said frequency of said electromagnetic field.

22. The system according to claim 18, wherein said stent is constructed of an alloy having a shape memory.

23. The system according to claim 18, wherein said stent is constructed of a biodegradable material.

24. The system according to claim 18, further comprising:

a localizing subsystem for tracking a position and orientation of said catheter, comprising:

a plurality of localizing field generators disposed external to said subject;

a position sensor on said catheter that is responsive to localizing electromagnetic fields produced by said localizing field generators; and

a receiver responsive to an output of said position sensor.